National Institute of Environmental Health Sciences

The socio-ecology of zoonotic infections

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Abstract:

P>The resurgence of infectious diseases of zoonotic origin observed in recent years imposes a major morbidity/mortality burden worldwide, and also a major economic burden that extends beyond pure medical costs. The resurgence and epidemiology of zoonoses are complex and dynamic, being influenced by varying parameters that can roughly be categorized as human-related, pathogen-related, and climate/environment-related; however, there is significant interplay between these factors. Human-related factors include modern life trends such as ecotourism, increased exposure through hunting or pet owning, and culinary habits, industrialization sequelae such as farming/food chain intensification, globalization of trade, human intrusion into ecosystems and urbanization, significant alterations in political regimes, conflict with accompanying breakdown of public health and surveillance infrastructure, voluntary or involuntary immigration, loosening of border controls, and hierarchy issues in related decision-making, and scientific advances that allow easier detection of zoonotic infections and evolution of novel susceptible immunocompromised populations. Pathogen-related factors include alterations in ecosystems and biodiversity that influence local fauna synthesis, favouring expansion of disease hosts or vectors, pressure for virulence/resistance selection, and genomic variability. Climate/environment-related factors, either localized or extended, such as El Nino southern oscillation or global warming, may affect host-vector life cycles through varying mechanisms. Emerging issues needing clarification include the development of predictive models for the infectious disease impact of environmental projects, awareness of the risk imposed on immunocompromised populations, recognition of the chronicity burden for certain zoonoses, and the development of different evaluations of the overall stress imposed by a zoonotic infection on a household, and not strictly a person.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Unspecified Exposure

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Zoonotic Disease

Zoonotic Disease: General Zoonotic Disease

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified